

Application Serial No. 10/605,466

REMARKS

Claims 1-20 are pending in the present application.

Applicant respectfully requests reconsideration of the application in view of the remarks appearing below.

Rejection Under 35 U.S.C. § 102

The Examiner has rejected claims 1 through 20 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,636,658 to Arakawa, stating that Arakawa discloses a circuit comprising "a first transistor (C_1)", and "a second transistor (C_2)", all connected and operating similarly as recited by Applicants. The Examiner then asserts that Arakawa expressly states that there is a predetermined ratio between the capacitances C_1 and C_2 , which is established due to the difference between the "gate electrode areas".

Arakawa discloses an alternating current (AC) voltage divider used to create a linear output voltage by means of a capacitor divider. The transfer function $V_{(out)}/V_{(in)}$ is well known for an AC capacitor voltage divider and is quoted in Col. 3, line 35, of the Arakawa patent as $V_{NI} = C_1/(C_1+C_2)*IVP_0$. In this equation, IVP_0 is an applied AC waveform which is shown in Figure 3 of the Arakawa patent. The capacitor divider provides a linear fraction of the changing input voltage IVP_0 on output node V_{NI} . This circuit works by use of classical displacement current through the capacitors and is controlled by $I_c = C dv/dt$.

In contrast, Applicants' claimed invention is a voltage divider for DC voltages. The voltage divider circuit of claim 1 recites transistors, not capacitors, and provides for a specific electrode to source/drain connection between the first and second transistors. For example, claim 1 calls for "a first transistor" and "a second transistor". Nowhere does Arakawa teach or suggest the use of transistors in place of capacitors, nor would such an alternative discussion even make sense, as discussed more below. Transistors are not capacitors, and so the rejection of the claims in view of Arakawa is necessarily defective under 35 U.S.C. § 102. Further, it is not possible to achieve the recited electrode to source/drain connection called for in claim 1 with capacitors since they lack electrodes, sources and drains in the sense these terms are used in relation to transistors. In addition, the last clause of claim 1 defines a relationship in the areas of

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the gate electrodes of the first and second transistors that cannot be accomplished with a capacitor that lacks gates and hence gate electrodes.

The novelty of the claimed invention is further apparent when the differences in operation between Applicants' voltage divider circuit versus Arakawa's voltage divider circuit are considered. Applicants' invention uses tunneling conduction, not displacement current, to accomplish voltage division using a DC input voltage (VDD). The Arakawa patent is silent with respect to creation of a voltage divider using tunneling elements. Instead, the Arakawa patent is directed to the division of a time-changing voltage (i.e., AC voltage) to a linear fraction using a standard capacitor voltage divider and specific types of polycrystalline layers. Application of a DC voltage from 0 volts to the Arakawa voltage divider will result in the flow of only a transient current, and a stable and predictable voltage on node N1, presumably a goal of the Arakawa invention, will not be possible.

These differences between the voltage divider circuit of claim 1 and the subject matter of the Arakawa patent are discussed here to provide background and context for the significant technical differences between Applicants' claimed invention and the invention of the Arakawa reference. As the Examiner correctly points out, certain of these differences are not specifically recited in the claims. In addition to providing background and context, the preceding comments were offered to counter any suggestion, which has not been provided to date, that transistors could be readily substituted for the capacitors of the Arakawa invention so as to achieve Applicants' claimed invention.

The comments provided above also apply to the voltage divider of claims 7 and 16 and the methods of claims 12 and 20. As such, all claims in the present application are believed to be novel over Arakawa.

In view of the preceding comments, it is clear that Applicants' claimed invention is novel over the Arakawa patent. Further, there is no suggestion in the Arakawa patent or elsewhere that the invention described therein could be expanded to cover Applicants' claimed invention.

Applicants attempted to conduct an interview with the Examiner to try and understand the basis for the rejection, which is not apparent from the Office Actions for the reasons discussed above. This interview was not granted based on the finality of the rejection. If the

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Examiner is willing to reconsider conducting an interview with the undersigned attorney, Applicants would be most grateful.

For at least the foregoing reasons, Applicants respectfully request that the Examiner withdraw the present anticipation rejection.

CONCLUSION

In view of the foregoing, Applicants submit that claims 1-20 are in condition for allowance. Therefore, prompt issuance of a Notice of Allowance is respectfully solicited. If any issues remain, the Examiner is encouraged to call the undersigned attorney at the number listed below.

Respectfully submitted,
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